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EXAMINER

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3744

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

CORRECTED SUPPLEMENTAL EXAMINER'S ANSWER

(EXAMINER'S RESPONSE TO THE ORDER RETURNING UNDOCKETED
APPEAL TO EXAMINER OF OCTOBER 9, 2007)

SUMMARY OF THIS PAPER:

This Supplemental Examiner's Answer includes all of the remarks that remain relevant from the two miscellaneous communications by the examiner (mailed on January 9, 2007 and March 12, 2007) to the issues raised by the Board of Appeals in the remand under 37 CFR 41.50(a)(1) by the Board of Patent Appeals and Interferences mailed October 31, 2006.

This paper should be considered as replacing those two miscellaneous communications. In addition, this is being done to provide a full and complete response to the Board's remand returning an un-docketed appeal to the examiner dated October 9, 2007. This Supplemental Examiner's Answer has been signed by the Group Director or designee.

SUBSTANTIVE REMARKS:

Pursuant to the remand under 37 CFR 41.50(a)(1) by the Board of Patent Appeals and Interferences mailed on October 31, 2006 **for further consideration of a**

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rejection, a supplemental Examiner's Answer under 37 CFR 41.50(a)(2) is set forth below:

The Board's Remand to the Examiner dated October 31, 2006 has been given careful consideration. The examiner responds here to the issues as presented by the Board, in the order of presentation.

At the onset, the examiner believes that the Board's Remand to the Examiner mailed October 31, 2006 has confused the record in two places. On page 3, line 1 of the Board's Remand to the Examiner mailed October 31, 2006, it is understood by the examiner that "temperature" should read - - pressure - -. Similarly on page 6, line 4 of the Board's Remand to the Examiner mailed October 31, 2006, it is understood by the examiner that the first occurrence of "temperature" should read - - pressure - -. As claimed in appealed claim 44, last two lines, Appellant is claiming that room pressure (not temperature) is varied in correspondence to the selected room temperature.

In the Board's Remand to the Examiner mailed October 31, 2006, the examiner has been given two options:

First option: reopen prosecution and enter a 35 USC 112, second paragraph rejection (consistent with the rationale articulated in *Dosse*) if the examiner cannot find

disclosed structure to satisfy the entirety of appellant's "means for regulating . . ."
recitation.

Second option: identify structure from appellant's disclosure for performing the entirety of the function of the "means for regulating . . ." recitation, what that structure is and where it is found in the specification. Additionally, the Board is requiring the examiner to re-explain Johannsen referencing structure therein that is found to correspond to the structure that the examiner has identified from appellant's disclosure that supports appellant's means-plus-function language.

The examiner here elects the second option. The examiner will endeavor to explain how the examiner interprets the claim language and finds corresponding structure in both appellant's disclosure and in the prior art.

Appellant's disclosure:

The "means for regulating an increase in pressure in at least one room relative to an outside pressure" is the combined action of the supply fan control and the exhaust fan control and the thermostat that opens and closes corresponding throttle control valves 60 to let pressurized air from the supply duct enter the room through the corresponding throttle control valve 60. All references made to appellant's specification are made with respect to the "clean-copy" of the specification dated April 9, 2001.

On page 22, lines 14-21 of the "clean-copy" of the specification dated April 9, 2001 and Figure 5, it is disclosed that each of the three individual room throttle control valves (60 in Figure 1) are controlled as a function of the difference (ΔT_N) between the set point temperature for the room $T_{SOLL\ N}$ (the horizontal arrowed line pointing toward comparator 310 from the far left side of Figure 5) and the actual temperature for the room $T_{IST\ N}$ (the U-shaped arrowed line extending from the far right-side of Figure 5 and terminating at the underside of comparator 310). Comparator 310 is a well-known feedback element in the art of automatic control and the minus sign next to the U-shaped arrowed line denotes conventional negative feedback (in this particular case of the measured room temperature). The output of the comparator (the difference (ΔT_N) between the set point temperature for the room $T_{SOLL\ N}$ and the actual temperature for the room $T_{IST\ N}$) is fed to regulator 320. Regulator 320 has other inputs T_{ZU} , P_{ZU} and $P_{ZU\ MIN}$ but ultimately generates a control signal Y_{TN} that controls the opening of each of three sets of the individual room throttle valves (60 in Figure 1). As one of ordinary skill would understand it, the opening of the individual room throttle valves (60 in Figure 1) is controlled as a function of the difference (ΔT_N) between the set point temperature for the room $T_{SOLL\ N}$ and the actual temperature for the room $T_{IST\ N}$, as well as other variables (i.e. inputs T_{ZU} , P_{ZU} and $P_{ZU\ MIN}$).

Thus, whenever there is a large difference between the set point temperature for the room $T_{SOLL\ N}$ and the actual temperature for the room $T_{IST\ N}$ the throttle valves will

open more widely (and the room pressure will vary as the air from the supply duct rushes in) and when there is a small difference between the set point temperature for the room $T_{\text{SOLL N}}$ and the actual temperature for the room $T_{\text{IST N}}$ the throttle valves will move towards a closed position (and again the room pressure will vary until a steady-state is reached).

As the Board has recognized on pages 2-7 of the October 31, 2006 remand to the examiner, incorporated here by reference, that when the supply duct pressure P_{ZU} is at a pressure higher than the room pressure (if the supply duct were not pressurized relative to the room, then, when throttle valve 60 is opened in response to the difference between the set point temperature for the room $T_{\text{SOLL N}}$ and the actual temperature for the room $T_{\text{IST N}}$ no flow would occur from the supply duct into the room – completely contrary to how these systems are understood to operate), the room pressure will be increased when the throttle valve 60 is opened in response to the difference between the set point temperature for the room $T_{\text{SOLL N}}$ and the actual temperature for the room $T_{\text{IST N}}$. The flow of air from the supply duct to the room will cause the room pressure to vary (at least momentarily). The Board, in its October 31, 2006 remand to the examiner, does not appear to understand (perhaps due to the difficult translation from the original German) that whenever air flows into or out of a room in a transient state (i.e. when either of throttle valves 60 or 61 are in the process of opening or closing) there must inherently be a dynamic variation in room pressure until the steady state is restored. Simultaneously, as disclosed on page 23, lines 18-25 of the specification, the

exhaust motor (element 16 in Figure 1) speed is controlled to regulate the pressure in the rooms to some predetermined value $P_{DIFF\ SOLL}$ above the outside pressure. This feedback regulation is shown in conventional automatic control format in Figure 8b (analogous to the temperature feedback loop explained by the examiner above and the exhaustive explanation of a feedback control loop given above is not repeated here).

Thus it will be apparent that "the means for regulating an increase in pressure in the at least one room relative to an outside pressure" is performed by the exhaust fan being regulated to maintain the rooms a certain pressure above the outside pressure and the "to vary the room pressure in correspondence to the selected room temperature" is performed by the action of opening and closing at least the throttle valves 60 in response to the difference between the set point temperature for the room $T_{SOLL\ N}$ and the actual temperature for the room $T_{IST\ N}$ causing the room pressure to vary in correspondence to at least the selected room temperature variable as well as other variables. The claim has an open construction and applicant's own disclosure lists a host of other variables that the room varies in "correspondence to" (which the Board has interpreted to mean "as a function of" in the October 31, 2006 remand, page 3, lines 1-2) such as the actual temperature for the room $T_{IST\ N}$, as well as other variables (i.e. inputs T_{ZU} , P_{ZU} and $P_{ZU\ MIN}$) and other controlled actuators (i.e. throttle valves 61).

Examiner's explanation of how the prior art can be read on the claims as interpreted by the examiner.

Johannsen

Commencing with the last full paragraph on page 5 of the Brief and ending at the bottom of page 7 of the Brief appellant appears to concede that, but for the "means for regulating an increase in pressure in the at least one room relative to an outside pressure, to vary the room pressure in correspondence to the selected room temperature", the Johannsen reference answers to all of the claim limitations.

In Johannsen, a supply air blower 10 is driven by an induction motor (col. 5, lines 43-44), through a supply air channel 20, through damper control boxes (21a and 21b) that are each controlled by separate thermostats in the zones or rooms of the building with which the air discharge from the associated damper control box (21a and 21b) that their air discharge is associated with (as disclosed in column 4, lines 36-47, incorporated here by reference, and reproduced here: "Duct 20 branches to a number of outlets throughout the building for distribution of air, two of which are shown in FIG. 1. Duct branches 20a and 20b lead to damper control boxes indicated by reference numerals 21a and 21b, and to discharge openings or grills 22a and 22b. Damper control boxes 21a and 21b would be thermostatically operated, in the case of an air

conditioning system, by separate thermostats in the zones or rooms of the building with which their air discharge is associated, but these temperature control loops are not part of the pressure control system of the present invention, and therefore have been omitted from FIG. 1.").

Thus, it is submitted that the main issue for the Board to decide is whether or not Johannsen satisfies the limitation "means for regulating an increase in pressure in the at least one room relative to an outside pressure, to vary the room pressure in correspondence to the selected room temperature" and to do that the Board will first have to decide what it means. The Board should note that according to appellant only the supply fan and its regulation are being claimed in claim 44. No exhaust fan is claimed in claim 44 even though both Appellant (see fan 16) and Johannsen (see fan 11) use regulated exhaust fans that in the Examiner's view operate in a similar manner. The point is that the functional statement "means for regulating an increase in pressure in the at least one room relative to an outside pressure, to vary the room pressure in correspondence to the selected room temperature" can apparently be accomplished entirely by appellant's supply fan 15 according to appellant. As stated above by the examiner, appellant is deemed to be claiming the action of an unclaimed exhaust fan in the "means for regulating" clause because only the exhaust fan is disclosed to have the capability of keeping the room pressure a predetermined pressure above the outside pressure.

It is submitted that Appellant best sets forth an explanation of how this (i.e. only the supply fan regulates an increase in pressure in the at least one room relative to an outside pressure) is accomplished not in his Brief, but in the Petition under 37 C.F.R. 1.181(a)(1) (Paper No. 38, received December 15, 2003, of record in this application). Beginning four lines from the bottom of page 2 through page 4, line 8 of Paper No. 38, Appellant explains, using an analogy, that a pressure of the room tends to follow the regulated pressure in the supply duct feeding the room as the air in a vehicle tire being filled from a regulated source at the filling station ultimately reaches the regulated pressure of the source.

The examiner's interpretation of how Johannsen answers to the claimed limitations is as follows. The examiner approaches this question in two parts since the means plus function recitation itself is compound in nature (i.e. **"means for regulating an increase in pressure in the at least one room relative to an outside pressure, to vary the room pressure in correspondence to the selected room temperature"**). The first question is does Johannsen answer to the bolded limitation in the immediately preceding quote? Figure 5 of Johannsen and the description thereof beginning at col. 12, line 39, clearly discloses regulating the exhaust blower to be a fixed CFM (cubic feet per minute of air flow) below the supply air blower CFM. This clearly regulates the room pressure relative to the outside pressure. "In actual practice the return blower is operated at slightly less than the values indicated in FIG. 5 so that a slight positive pressure will be maintained in the building to prevent infiltration and to establish

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exfiltration therethrough." (quoting col. 12, lines 59-61 of Johannsen). The Examiner submits that it is beyond question that Johannsen maintains the increase in pressure in at least one room relative to the outside pressure by the action of his two regulated supply and exhaust fans (as described above), in a manner entirely consistent to how the appellants' system operates.

Turning to the remaining portion of Appellant's the means plus function limitation (i.e. "means for regulating an increase in pressure in the at least one room relative to an outside pressure, **to vary the room pressure in correspondence to the selected room temperature**"), it is submitted that Johannsen also does this. There is a clear variation of the room pressure in correspondence with the selected room temperature as disclosed in col. 4, lines 36-47 of Johannsen. As disclosed in Johannsen, the damper boxes 21a and 21b are each thermostatically operated by a separate thermostat in each room associated with the discharge of conditioned air from that damper box into the room, much as explained above in regards to appellant's Figure 5. As is conventional knowledge to those of ordinary skill in this art, when the thermostat senses the room is too hot in the summer, it signals its associated damper box to open to let temperature conditioned (cool) air into the room and likewise when the thermostat senses the room has been cooled to the set point temperature, it signals the associated damper box to close to stop conditioned air flow into the room (to prevent over-cooling). As disclosed by Johannsen "these temperature loops are not part of the pressure control system [of Johannsen] and have therefore been omitted from FIG. 1". Even

though they have been omitted because of their conventionality, they must be present for the Johanssen system to temperature condition the individual rooms.

It is absolutely clear that the room pressure must vary as a function of the selected room temperature (set on the thermostat) in each room in Johanssen. When the damper unit opens, responsive to a call for conditioned air from its associated thermostat, the room pressure rises just as described by Appellant in his Petition under 37 C.F.R. 1.181(a)(1) (Paper No. 38, received December 15, 2003, of record in this application). Beginning four lines from the bottom of page 2 through page 4, line 8 of Paper No. 38, Appellant explains, using an analogy, that a pressure of the room tends to follow the regulated pressure in the supply duct feeding the room as the air in a vehicle tire being filled from a regulated source at the filling station ultimately reaches the regulated pressure of the source. Basically, each room in Johanssen, to use Appellant's analogy, is like a tire and when the thermostatically controlled damper unit opens, the air from the pressure regulated supply duct (which supply duct pressure must be at a higher pressure than the room pressure, otherwise the supply air would not enter the room, just as the air pressure at the filling station is set to a regulated pressure higher than the pressure prevailing in the tire by the time the driver notices it is "low") flows into the room and builds up the pressure.

It is therefore submitted using Appellant's own analogy (as described by Appellant in his Petition under 37 C.F.R. 1.181(a)(1), Paper No. 38, received December

15, 2003, of record in this application) and the most basic and fundamental understanding of one of ordinary skill in this art that every time the damper unit opens, in Johannsen, the pressure in the room will increase **to vary the room pressure in correspondence to the selected room temperature**. When the room thermostat closes its associated damper unit, the room pressure will be lower than when the room thermostat opens the damper unit, because of the change of airflow into the room from the supply air duct. To put it as simply as possible, **room pressure varies when air flows into or out of it**, just as tire pressure varies when air flows into it or out of it.

Thus, both prongs of the compound means plus function limitation are met by Johannsen. Note again that the examiner believes that this means plus function recitation in claim 44 is implicitly claiming the action of an unclaimed exhaust fan. Appellant argues that the supply fan alone can accomplish this regulation of the room pressure to be some differential pressure above the outside pressure something that the examiner does not believe is supported by the original disclosure. Nonetheless, the means plus function recitation in question as interpreted by the examiner above (to include the action of the regulated exhaust fan) is properly supported by the original disclosure (and anticipated/obvious over the prior art).

In pages 5-7 of Appellant's Brief of April 10, 2003, Appellant simply ignores the thermostatic control of the damper units 21a and 21b in Johannsen and how they vary the pressure in each of their associated rooms responsive to temperature. Ultimately

such an argument must fail because it doesn't consider the entirety of the Johannsen disclosure. Just because the overall building is under a slight positive pressure by the action of the slower running exhaust fan is unrelated to the action of the supply damper units 21a and 21b opening and closing the supply duct to the space and Johannsen specifically states that the "temperature control loops are not part of the pressure control system of the present invention" (Johannsen, col. 4, lines 45-46, quoted approvingly in Appellant's Brief of April 10, 2003, page 7, second full paragraph).

Rayburn

Rayburn shows a combined heating/cooling unit at 28 in Figure 1 and 154 in Figure 2 (see col. 7, lines 13-20), if it is even necessary to meet the terms of Appellant's claim 44. Rayburn also discloses damper units (102, 104, 106 and 108) in Figure 2 that are configured to open and close as their associated space temperature thermostats (122, 124, 126 and 128) call for cooling or heating (as described in column 7, lines 1-12) with a somewhat more detailed explanation of the conventional behavior of how the thermostatically controlled dampers of Johannsen actually operate. If the Board is concerned about accepting at face value the examiner's explanation of how the conventional temperature controlled dampers of Johannsen operate, the Board need only look Rayburn's explanation of how the conventional temperature controlled dampers in a multi-zone system such as Johannsen's operate.

Appellant concedes on page 9 of the Brief of April 10, 2003 that Rayburn teaches the type of conventional behavior that the Examiner has relied upon for it to teach in regard to the abbreviated explanation given by Johannsen.

The appellant must within **TWO MONTHS** from the date of the supplemental examiner's answer exercise one of the following two options to avoid *sua sponte* **dismissal of the appeal** as to the claims subject to the rejection for which the Board has remanded the proceeding:

(1) **Reopen prosecution.** Request that prosecution be reopened before the examiner by filing a reply under 37 CFR 1.111 with or without amendment, affidavit, or other evidence. Any amendment, affidavit, or other evidence must be relevant to the issues set forth in the remand or raised in the supplemental examiner's answer. Any request that prosecution be reopened will be treated as a request to withdraw the appeal. See 37 CFR 41.50(a)(2)(i).

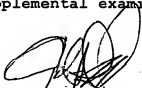
(2) **Maintain appeal.** Request that the appeal be maintained by filing a reply brief as set forth in 37 CFR 41.41. If such a reply brief is accompanied by any amendment, affidavit or other evidence, it shall be treated as a request that prosecution be reopened under 37 CFR 41.50(a)(2)(i). See 37 CFR 41.50(a)(2)(ii).

Extensions of time under 37 CFR 1.136(a) are not applicable to the **TWO MONTH** time period set forth above. See 37 CFR 1.136(b) for extensions of time to

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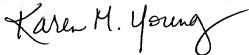
reply for patent applications and 37 CFR 1.550(c) for extensions of time to reply for ex parte reexamination proceedings.

A Technology Center Director or designee has approved this supplemental examiner's answer by signing below:


Justin K. Ford
Primary Examiner

Primary Examiner, Art Unit 3744

Group Director or Designee, Tech Center 3700



KAREN M. YOUNG
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